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Malignant tumours of the small intestine: a case of jejunal adenocarcinoma

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Abstract. – The Authors analyse the main problems concerning malignant tumours of the small intestine. They report a case of jejunal adenocarcinoma recently observed.

They emphasise the importance of surgery, both diagnostic and therapeutic, even in advanced stages, for the treatment of this neoplasm.

Key Words:

Malignant tumours of small intestine, Jejunal adenocarcinoma.

Introduction

Primary neoplasm of the small intestine are rare, amounting to 3-6% of gastrointestinal tumours[1] and a only 0.1-1% of the malignant ones[2-4]. The low incidence of tumours in the small intestine is surprising when considering that it accounts for 75% of the length and 90% of the mucosal surface area of the gastrointestinal tract[5].

Several theories have been outlined to explain such occurrence, on the basis of different protective mechanisms: rapid transit time contents may decrease exposure to carcinogens[6,7]; effective local immune system[8]; the lower bacterial population and difference in bacterial metabolism results in formation of fewer carcinogenic compounds from bile and other substances than in colon[9]; very high concentrations in the enzymatic system of microsomial hydroxilase benzopirene[10,11]; rapid cellular turnover of the mucosa which, by competitive inhibition, antagonises the proliferation of neoplastic cellular groups[12]; presence of alkaline pH in the intestinal lumen[13].

Table I shows the distribution of malignant neoplasms in the small intestine with related frequency[4,14-32].

From an exam of what precedes, it seems interesting to illustrate a case of adenocarcinoma of the small intestine, which we were able to observe during surgical guard at the IV Surgical Clinic in Rome University "La Sapienza".

Clinical case

A 70 year-old woman presented with a 3 months history of abdominal pain, mainly localised in the upper quadrants, asthenia and, in the last three days, vomiting (first food material, then of bile).

A specific abdomen X-ray film highlights gastric ectasia and marked swelling of the first jejunal loop.

The EGDS shows ectasia together with gastric and duodenal swelling, with stagnation of food remnants and bile. The radiological study of the digestive tract with barium meal confirms gastric dilation with a reduction in the plical pattern. The duodenal bulb and C appear highly dilated up to the first jejunal loop, where a clear stop of the contrast medium can be observed, with lasting properties (Fig. 1). The abdominal ultrasound scan shows a tangible swelling of the stomach and of the intestinal loops, with no hepatic L.O.S. and with at least two hipoecogenic areas larger than 1 cm in diameter in the context of the greater omentum, probably of repetitive nature.

Laparotomy prompted by small bowel obstruction revealed a discrete mass arising from the jejunum, about 10 cm from the Treitz, with presence of metastatic deposits in the omentum. A wide excision of the jejunum

Table I. Distribution of malignant tumours of the small intestine. Data from an examination of 20 studies[4,14-32].

	Duodenumum	Jejunum	Ileum	Total
Adenocarcinoma	193 (17.8)	168 (15.2)	81 (7.4)	439 (40.4)
Lymphoma	7 (0.6)	71 (6.5)	111 (10.3)	189 (17.4)
Leiomyosarcoma	18 (1.6)	42 (3.9)	37 (3.4)	97 (8.9)
Carcinoides	24 (2.2)	22 (2)	279 (25.7)	325 (29.9)
Other sarcomas	0 (0)	4 (0.4)	9 (0.8)	13 (1.2)
Total	245 (22.5)	313 (28.8)	528 (48.7)	1086

was performed and followed by manual end-to-end anastomosis.

The surgical specimen consists of a segment of jejunum 23 cm long, at the centre of which an ulcerated tumour can be observed, 2.5 cm in diameter, causing a stenosis for 2/3 of the intestinal lumen. The histologic exam confirmed that was a case of adenocarcinoma moderately differentiated and invasive up to the peri-visceral fat deposits. The perituomoural lymph node packet and the two omentum lymph nodes have been infiltrated by the neoplasm.

Stages: pT3 pN2 pMx stage III G2.

The patient is released during the 11th day, after a regular post-surgical period.

Discussion

In the tumoral pathology of the small intestine, the adenocarcinoma has an incidence of 30-50% out of all different series[14-32]. The most frequent anatomic location is the duodenum, followed by the jejunum and by the ileum.

The relative usefulness of diagnostic tests, compounded with a set of vague and non-specific symptoms, produce a late diagnosis of the adenocarcinoma of the small intestine. Especially for the forms located beyond the Treitz, diagnosis is only made on the surgical table due to the onset of complications caused by a haemorrhage or an occlusion.

Figure 1. Contrast study of the gastrointestinal tract. The duodenum appear higly dilatated up to the first jejunal loop, where a clear stop of the contrast can be observed.

In the case observed by us, symptoms took an insidious start, with three months of epigastralgia, asthenia and moderate loss of weight. Only in the days preceding hospitalisation did a gradual worsening of the general conditions obtain, with nausea and vomiting.

The symptomatology of the adenocarcinoma of the small intestine given by the literature is as follows: abdominal pain (33-68%), nausea and vomiting (11-42%), loss of weight (4.5-63%), perforation (2.5-14%)[33]. Pre-operative diagnosis is extremely difficult as it is connected with the location of the tumour. Since it does not reach beyond the duodenum, endoscopy only has a secondary and indirect importance only for lesions close to the duodenum itself. Relative use can be made of X-ray studies due to the instability of the contrast medium, to the transit speed, to the impossibility of extending the walls of the intestine and also to its length[20,34]. Diagnostic accuracy of X-ray studies of the digestive system per os ranges between 25 and 85%[2,25,35,36]. Better results can be obtained with an enema of the small intestine introducing the contrast medium through a small probe positioned beyond the Treitz , combined with the use of hypotonic substances.

In our case, since the lesion is located next to the duodenum, X-rays films carried out with barium-treated meal showed a clear interruption of the contrast medium at about 10 cm from the Treitz, without however pointing to any precise diagnosis.

Ultrasound scan and CT are useful in the study of neoplasms with a prevailing extra-luminal development, of mesenteric and non-mesenteric metastases, and in the stage determination of neoplasms of lymphatic origin[20,34]. More useful would be an arteriographic study of the celiac tripod and particularly of the upper mesenteric artery, since it would highlight a blood supply that is significant for diagnosis of a malignant tumour. Indeed, the technique of angiographic studies, apart from specifying the intestinal segment affected by the neoplasm, can also suggest the nature of the lesion since the vascularisation source of benign neoplasms is exclusively the gastro-duodenal and/or upper mesenteric artery, while the vascularisation in malignant neoplasms is also extra-intestinal, particularly coming from the renal artery and from lumbar arteries[37].

In this case, diagnosis was possible only on the surgical table. The presence of metastatic repetitions leads us to consider that the onset of the disease occurs long in advance of the appearance of symptoms. This is in line with what observed by other Authors, as the interval between the appearance of symptoms and the surgical operation is 2 months in 60% of the cases and 12 months in 20% of them[2,20,34].

The most suitable therapeutic approach is undoubtedly surgical, aimed both at removing the neoplasm directly, and to prevent the onset of any occlusive, haemorrhagic or perforating complications. Removing the tumour can be difficult at times, particularly when the neoplasm is located in the duodenum or closed to the Treitz. According to some Authors, resectability is only feasible in 40% of the cases. Tumours located in the jejunum or in the ileum certainly require a less demanding procedure compared to the one adopted in cases of duodenal neoplasm (Whipple intervention). Nevertheless, the tumoural extension towards the mesentery implies sacrificing large segments of the small intestine. In this case, since the tumour was localised at 10 cm from the Treitz, it was possible to perform an intestinal resection with termino-terminal anastomosis.

Survival rates reported in the literature for operated subjects are 15-30% at 5 years[2,20,34,38].

It is possible to conclude that the role of surgery is fundamental and twofold: diagnostic and stage-determining on one side, therapeutic (curative or palliative) on the other.

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